Sanitized Copy Approved for Release 2011/08/31 : CIA-RDP80-00809A000600330781-8

CLASSIFICATION CONFIDENTIAL CONFIDENTIAL

CENTRAL INTELLIGENCE AGENCY

INFORMATION FROM FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

50X1-HUM

COUNTRY	USSR	DATE OF INFORMATION	1948
SUBJECT	Scientific - Minerals, crystallography	DATE DIST.	16 Aug 1950
HOW PUBLISHED	Quarterly periodical		
WHERE PUBLISHED	Moscow	NO. OF PAGES	2
DATE PUBLISHED	1948	SUPPLEMENT TO REPORT NO.	
LANGUAGE	Russian		

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT 50 U. S. C., 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Zapiski Vsesoyuznogo Mineralogicheskogo Obshchestva, Part 77, No 2, 1948,

50X1-HUM

USSR SCIENTIFIC SEMINARS ON CRYSTALLOGRAPHY

Sessions of the Federov Scientific Crystallographic Seminar, at the Chair of Crystallography of the Leningrad State Order-of-Lenin University, were devoted to the following discussions:

21 October 1947

At this session of the seminar, Professor O. M. Ansheles reported on "The Growth of Crystals." On the basis of Coulomb's law, he discussed the attraction of particles from a solution (or melt) by the particles of the crystal which are disposed over the surface of the various crystalline faces. He showed that the force of attraction increases with the decrease in the reticular plane of the facets; hence the preferential growth of these faces and Brave's Law. Calculations also show that only faces with a comparatively large reticular plane grow by means of displacements, or transpositions, parallel to themselves. The irregular faces, or faces with a small reticular plane in the initial stages of growth, are replaced by faces with a large reticular plane which are disposed at small angles to the faces initially present.

This law, established by I. I. Shafranovskiy, while observing the regeneration of crystals (Ucheniye Zapiski Leningradskogo Gosudarstvennogo Universiteta /Scientific Memoirs of Leningrad State University/, No 88, 1943), confirms the correctness of these considerations on crystal growth. They confirm also the observations of A. V. Shubnikov on the growth of a ball ground out of a crystal (How Crystals Grow, (Kak Rastut Kristally), Moscow, 1935).

4 December 1947

At this session of the seminar, Alumnus V. A. Mokiyerskiy gave two reports. The first was "Adsorption on a Crystallic Powder and a Method of Its Determination." Referring to his previous report in 1946, in which he demonstrated the relation between the variations in form of crystals of magnesium sulfate heptahydrate and the selective adsorption of borax upon the faces of the crystal, the lecturer showed that without the aid of quantitative chemical analyses the presence of adsorption can be established experimentally by studying the mineralogical habitus of the crystals. The habitus of $MgSO_4 \cdot 7H_2O$ is very sensitive

CLASSIFICATION CONFIDENTIAL

STATE	X	NAVY	X	NSRB	DISTRIBUTION
ARMY	X	AIR	X	FBI	

Sanitized Copy Approved for Release 2011/08/31 : CIA-RDP80-00809A000600330781-8

Sanitized Copy Approved for Release 2011/08/31 : CIA-RDP80-00809A000600330781-8

50X1-HUM

CONFIDENTIAL

to the greatest variations of borax in solution. The addition of 50 milligrams of borax to 2 liters of saturated magnesium sulfate solution is detected by a variation in the habitus of the crystals. This permits determination of the change in borax concentration in the case of adsorption on a powder. For rigidly fixed conditions of temperature and concentration, he determined the habitus of crystals grown by the planetary [?] method. The habitus was characterized by the ratio of dimensions of the crystal along the C-axis of the nucleus to the average value of the perpendicular to the prism (110). Thereupon he added to the solution magnesium sulfate powder which had been mixed for 2 hours. The crystals obtained again differed from the previous ones and testified to the drop in borax concentration. An approximate calculation showed that 300 grams of powder absorbs on its surface about 50 milligrams of borax. The addition of this amount of borax to a solution results in a reappearance of the previous habitus of the crystals.

The second report discussed "The Influence of Convective Currents on the Asymmetry of $MgSO_4 \cdot 7H_2$ Crystals." The study of the growth of crystals at static conditions is of great interest. If $MgSO_4 \cdot 7H_2O$ crystals are disposed through a solution, so that the C-axis is horizontal, then a nonuniform development of finite faces of crystals is observed. The faces turned downwards have a greater speed of growth than the upper faces which have the same symbol. Such an asymmetry of growth of lower vs. upper faces is observed in all $MgSO_4 \cdot 7H_2O$ crystals composing clusters. The nonuniform growth is explained by the direction of movement of the concentration currents.

26 December 1947

At this session of the seminar, V. A. Frank-Kamenetskiy reported on "The Structure of the Growth Surface of Baryte Crystals."

- E N D -

CONFIDENTIAL

CONFIDENTIAL

Sanitized Copy Approved for Release 2011/08/31 : CIA-RDP80-00809A000600330781-8